

Wall (J.P.)

THE

CLIMATE AND DISEASES

OF THE

GULF COAST OF THE FLORIDA PENINSULA,

WITH REMARKS ON THE FORMER

IN RELATION TO PULMONARY TUBERCULOSIS.

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ART. II.—*The Climate and Diseases of the Gulf Coast of the Florida Peninsula, with remarks on the former in relation to Pulmonary Tuberculosis.* By J. P. WALL, M. D., Tampa, Fla.

By the "gulf coast," it is meant to include a distance of about 30 miles or more into the interior, where is found the natural water shed, dividing the peninsula in its length into two nearly equal portions, till the immediate vicinity of the Everglades, is reached, in the extreme southern portion. The gulf coast extends from Cedar Keys, $29^{\circ} 07'$, to Cape Sable, the extreme point on the main land, in latitude $25^{\circ} N.$, a distance of about 240 miles. North of the 28° of latitude, the mean altitude immediately along the gulf coast is about 15 feet, with some exceptional points of greater elevation. In the interior the mean altitude is about 40 feet to below Fort Meade, and then gradually declines to about 20 feet, with a still further decline in the vicinity of the Everglades. North of Tampa Bay, on the coast, and Fort Meade, in the interior, the country is more or less undulating, with some considerable hills, and is peculiar in many places for its subterranean drainage, most of the rain water escaping through subterranean passages. South of Tampa Bay and Fort Meade the country is generally level, and, the rain water being got rid of only by surface drainage, is subject to more or less inundation by the heavy rainfall of the summer. Many small rivers empty into the various bays and harbors, with which the coast is frequently indented all along, some of which rise as springs in a full volume from the bowels of the earth. These latter, however, are only found in those sections abounding with subterranean vents for the rainfall, and consequently none are found south of the 28° of latitude.

The character of the country is that of piney woods, interspersed with hammocks, swamps, lakes, ponds, and prairies of variable extent, respectively, from one to thousands of acres. The soil is mostly a silicious sand, of a porous nature, on a substratum of clay, more rarely, marl or rock. More or less vegetable debris in proportion to the quantity and luxuriance of the forest growth, is found intimately mixed with the surface soil. Lime rock is found generally, and in many places crops out of the surface of the ground. In many localities the water is hard. Springs, impregnated with sulphur, and more or less slightly, with other minerals, are quite common.

The natural growth is pretty much the same as that of Georgia

and the other Southern States, with the exception of the wild orange, and, in the extreme Southern part, the palm and cocoa nut trees.

Meteorology.—Tampa, being nearly centrally situated on the gulf coast, and some 30 miles interiorly from the gulf, at the head of Hillsborough Bay, is selected as a fair medium locality for the following meteorological observations. These are taken from the statistical report of the Surgeon General's office, published in 1856: The mean temperature for the fair seasons, and for the whole year, for 25 years, is, spring, $72^{\circ}08$; summer, $80^{\circ}20$; autumn, $71^{\circ}04$; winter, $62^{\circ}35$; whole year, $72^{\circ}48$. The mean rain-fall for the fair seasons and for the whole year, for 16 years, is, spring, 8.56 inches; summer, 28.24 inches; autumn, 10.63 inches; winter, 8.04 inches; whole year, 55.47 inches. The following summary of the weather is the mean for 9 years: (the capitals indicate the direction of the wind, and the figures the number of days from that direction.) N., 27; N. E., 73; E., 60; S. E., 44; S., 40; S. W., 43; W., 43; N. W., 29; fair, 234; Cloudy, 143; rain, 98. *four four*

As regards the hygrometric condition of the atmosphere, it is to be regretted that no observations have been made; the same is also true of the presence of ozone. The climate, however, may safely be classed as a moderately dry one, at least; and this conclusion is arrived at from the coolness of the nights, causing universally and invariably, except in very cloudy weather, no inconsiderable fall of dew, while the thermometer usually falls from 10° to 20° below the maximum range of the day. These facts indicate the great rapidity of radiation from the earth; it being well understood that saturation of the atmosphere, with aqueous vapor, is inimical to the radiation of heat. Prof. John Tyndall says: "Wherever the air is dry, we are liable to daily extremes of temperature. By day, in such places, the sun's heat reaches the earth unimpeded, and renders the maximum high; by night, on the other hand, the earth's heat escapes unhindered into space, and renders the minimum low. Hence the difference between the maximum and minimum is greatest where the air is driest."*

The atmosphere is to a remarkable degree antiseptic, except during the heavy rain-fall of summer. This is, no doubt, dependent on the presence and oxydizing properties of ozone, together with the natural dryness of the climate. The precipitation of moisture in the atmosphere, as fog, is extremely rare, only occurring occasionally, by no means regularly, in the fall and spring.

The highest meridian range of the thermometer rarely reaches 96° , and never exceeds it, even in the very hottest days of summer, while more or less breeze, almost universally, day or night, is present. The nights, even during the summer, are remarkably cool, and few transpire in which some light covering in bed is not required, especially from midnight till after sunrise. Continuous exposure to the night air seldom fails to produce unpleasant, chilly sensations, when only protected by the customary daily habiliments.

* Fragments of Science. Article—Radiation.

Diseases.—The catalogue of endemic diseases of the gulf coast only comprise those of malarial origin, viz, intermittent and remittent fevers. Of these the types are, as a rule, mild, the pernicious varieties being but exceptionally encountered. And for the last few years the malarial fevers have been notably less common than before and a few years subsequent to the late war. This may be accounted for, to a great extent, by the abandonment of large plantations, where annually more or less new lands were prepared for cultivation by paring the lands of the smaller growth, and killing the larger timber by girdling it with the chops of an axe, from which naturally resulted no inconsiderable amount of lignious decomposition, besides exposing the new soil to the direct rays of the sun. In my experience hæmaturia has but rarely manifested itself as a complication, while some physicians say they have never encountered it. At any rate, I have never noticed it as a dangerous complication with the pathological phenomena described by the physicians of the other Southern States. It was simply a hæmaturia, coming on in the hot stage, and disappearing in the apyrexia; the hemorrhage never assuming alarming proportions.

The treatment of the malarial fevers is generally that ordinarily pursued; the exhibition of an ordinary vegeto-mercurial purgative, followed by quinine at short intervals during the intermission or remission of the fever. Usually from twelve to twenty grains of quinine, in divided doses, given in the course of eight or ten hours, suffice to check the paroxysms of intermittent, and stop, or greatly mitigate, remittent fever. The hæmaturial variety is generally treated in the same manner, with the addition of a sinapism to the loins, and sometimes the use of the warm bath. In the pernicious varieties, commonly spoken of in Florida as *congestive chills*, the salvation of the patient depends on early and rapid cinchonism. Once the chill and congestion are thoroughly established, with extremities cold up nearly to the body, the stomach becomes intolerant of stimulants and medicines, or its functions are in abeyance to such a degree that no absorption takes place, so that their administration proves futile. Under such circumstances, in a few instances I have administered twenty or thirty grains of quinine, hypodermically, being compelled to use some vegetable acid for its solution, through several different punctures, with curative results. For hypodermic use the muriate of quinine, being more soluble in water, is to be preferred to the sulphate. It is gratifying to state, however, that in a practice embracing a very large area of territory, I have not met with nor heard of a case for several years.

The continued fevers, typhoid and typho-malarial, or any other variety of continued fever, have never occurred within my experience of fifteen years; nor have I heard of any within the experience of others. From these forms of fever this portion of the State is totally exempt; nor do I hear of them prevailing in other sections of the State with denser populations.

Yellow fever and dengue are occasional visitants of the seaport towns, and in a residence of three years in Tampa, I have seen an

epidemic of each—yellow fever in 1871, and dengue in 1873. As usual, those attacked by yellow fever were recent residents, who had never been exposed to its infection before. The geographical position and commercial relations of the gulf ports will, no doubt, always render them peculiarly obnoxious to the occasional epidemic prevalence of yellow fever, and this latter will likely increase *pari passu*, with their growth and commercial importance. In the epidemic of 1871, it prevailed also at Cedar Keys, and from thence was carried to Gainesville, a town a hundred miles from the Keys, in the interior. In my observations of the epidemic in Tampa, it was noted that a fever with a temperature of 106° F. and upwards invariably proved fatal. At that time I failed to appreciate the pathognomonic significance of a gradually lowering pulse rate, contrasted with a high temperature, so clearly pointed out since by Dr. Faget, of New Orleans.

Idiopathic diseases of the liver—except the occasional occurrence of jaundice—have never come under my observation, and I am inclined to the opinion that they are very uncommon. Those histological metamorphoses as pathological concomitants of the malarial fevers, resulting in pigmentation, or bronzing of the organ, are probably common, but how much of structural or functional disease, if any, is dependent on them, is as yet an undetermined question.

Enlargement of the spleen is incidental to the malarial fevers, and the malarial cachexia; and in the latter the enlargement may be more or less chronic in its nature.

Acute inflammatory affections of the respiratory organs—except an occasional catarrh with some bronchitis—are extremely infrequent as a rule; though here, as elsewhere, an epidemic influenza sometimes prevails, during which serious pulmonary complications in some cases are developed, taking their departure apparently from the epidemic disease. But idiopathic pneumonia and pleurisy occur very rarely, and are never so common as to be considered as even approximating either an endemic or epidemic character.

Diarrhœa and dysentery only occur as sporadic diseases, and never in an epidemic or malignant form. These diseases are generally mild, and readily yield to treatment.

No case of acute rheumatism has ever come under my observation, except when the patient was also suffering with a gonorrhœal discharge, more or less acute. I have noted three such cases; one in a negro man aged 22, where the knee joint was acutely inflamed; one in a white man aged 38, with the shoulder joint the seat of the rheumatism; and a negro woman aged 22, when the wrist was the joint attacked. In all these cases my services were first sought in consequence of the rheumatic disease, and the presence of gonorrhœa admitted in the course of the clinical examination. In the case of the woman, her husband had but recently been under treatment for gonorrhœa, and she complained of having the "whites."

Cerebro-spinal meningitis, either as sporadic or epidemic has never occurred in this section of the State south of Ocala, where it was said to have prevailed in the winter of 1863-1864. Whether the diagnosis was merely made from the clinical history of the cases, or confirmed by post-mortem examinations, I do not positively know, but am inclined to the opinion that confirmatory evidence in anatomical lesions was not sought for. During the same season a disease presenting many of the symptoms of cerebro-spinal meningitis, prevailed extensively among the negro laborers employed on the fortifications at Baldwin, and on the St. Mary's river, but unfortunately, on account of the exigencies of the military situation then pending, the positive character of the disease was not determined by autopsies. If this was cerebro-spinal meningitis it is the only time that the disease has been known to prevail in the State. At the time many of the medical officers of the Confederate service were inclined to the opinion that this disease was pernicious malarial fever of cerebral congestive type. In the few cases which I saw at the time in Lake City, the subjects being negroes, if there was any petechial eruption it escaped observation.

Trismus Nascentium is not more common in this section than is general throughout the Southern States; and while more common among the negroes, it is by no means exclusively confined to that class of our population. In my experience, however, trismus has not been a very frequent disease.

Traumatic tetanus very rarely occurs after injuries and wounds or surgical operations. In fact this disease is so extremely infrequent as never to occasion the surgeon any apprehension of its being developed as a complication. Among the wounded at the battle of Olustee, in February, 1864, tetanus was much more common than had come under my observation in a previous considerable service in the general military hospitals of Richmond, Va. The night, following the battle in the afternoon, was very cold for Florida, and the wounded were much exposed, both in their transportation to Lake City that night and after reaching there, in consequence of inadequate hospital accommodations. The disease was on that occasion almost exclusively manifested in connection with wounds of the foot and leg.

The frequent occurrence of small nascent pterygium, especially among the males living on the coast, has appeared to me dependent on the reflection of the white sand so common when the coast is not margined by swamps.

So far this section has escaped diphtheria in either a sporadic or epidemic form. There are not wanting those physicians, however, here as elsewhere, who, either from ignorance or an unprofessional anxiety for reputation, call almost every affection of the throat diphtheria.

Insolation or sunstroke never occurs in either town or country; nor have I heard of its occurrence in Key West. The heat is never so excessive in this climate as either to cause disease or exercise an un-

favorable influence on the sick. On the other hand convalescence is always remarkably rapid as regards both diseases and surgical injuries.

Calculus affections of the urinary organs are never met with in this section, nor as I know of in any other part of the State. From the conditions favorable to the formation of vèrical calculi Florida appears to be peculiarly exempt.

Of intestinal worms the most common varieties are the *ascaris lumbricoides* and *ascaris vermicularis*. The tape-worm in any of its varieties is never met with; nor do I believe that it is to be found in any section of the State.

No instance of hydrophobia, in either animal or human, within the State has come within my knowledge.

The mortality of this section is extremely low; and that from malarial fevers, for the last few years, has been *nil*. And so far as statistics can be made available they show a less percentage of mortality for Florida than any other State in the Union. The entire absence of many diseases more or less fatal in their character, and the greater mildness of those of malarial origin cannot fail to demonstrate the natural salubrity of the climate. Much of this exemption from the graver forms of disease depends doubtless upon its greater freedom from the extremes of temperature.

On account of the sparseness of population, and the considerable distances between settlements, the eruptive fevers have prevailed in this section of the State only during times of war, when the infection was carried into communities by travelling, and returning soldiers. Thus did rubiola prevail quite extensively during the Seminole disturbances of 1856 and 1857; and the small pox more slightly in isolated communities in 1863 and 1864. Scarlatina broke out on the plantation, in Hernando County, of Hon. D. L. Yulee, in the spring of 1861 among the negro children and those (white) of the overseer's family. How the infection got there I was never able to discover; though the family of the Hon. Senator having but recently arrived at the plantation from Washington, D. C., for a temporary sojourn, it is but reasonable to infer that this very tenacious and subtle contagious virus found its way there with them. The disease proved exceedingly mild, and was followed by no unpleasant sequelae. In all there were thirty-five or forty cases and only one death, an infant (negro) aged nine months, in which bronchitis and lobular pneumonia were developed as intercurrent affections. Although throat affections, with more or less glandular swellings, were sufficiently common to declare it of the anginose variety, yet upon the whole, the disease was so mild as to require confinement to bed in only a few instances. This is the only instance of the disease ever having been in this section; and has been alluded to in confirmation of what would be naturally inferred in relation to the climate, the greater mildness of the eruptive fevers here than in higher and damper latitudes.

Poisonous reptiles and insects are not more common and numerous in this section than they are generally throughout the Southern

States, and comprise only the same varieties. Mosquitoes, sand flies and other insects are generally less troublesome in this section than they are on the Atlantic and St. John's, or even in New Orleans. Here they are usually found in certain localities only, being very troublesome only in a few places, while in the greater portion of this section the use of bed nets is never required.

Adaptability of the Climate to Consumptives.—As yet the influence of the meteorological conditions of different climates on disease is not sufficiently understood as to enable us to determine, with any accuracy, what meteorological combinations may be either inimical to, or provocative of, disease. Up to within a recent period the temperature of a climate was considered the principal factor in the causation of many diseases, and especially those of the respiratory organs. More recent observations and experience, however, have pretty clearly demonstrated that this belief or assumption can be predicated only to a very limited extent, indeed, of nearly all diseases, and particularly those of the respiratory organs. That ozone is only an *allotropic* state of oxygen is conceded by the latest chemical authorities; and whether or not other allotropic conditions of the aerial elements, subtle and as yet undetectable, may exist, and, by their action on the human economy, cause disease, is a problem for future scientific elucidation. The assumption of such a theory—bringing an idiosyncratic susceptibility as an accessory factor—might go far towards the explanation of causation in many diseases in lieu of the germ or cryptogamic doctrines. We are almost forced to such a conclusion to account for the different effects on human health of various but remote climates, similar in latitude, altitude and meteorological conditions. If this proportion should be true of disease in general, it is but a reasonable supposition that it may be true also of pulmonary tuberculosis; and until the ultimate laws of both biology and meteorological physics are more fully comprehended, it is impossible to judge *a priori* what climates may prove beneficial, or otherwise, to consumptives.

To the earnest and patient investigation of climatic influence on consumption, the conclusions arrived at by Dr. Manning Simons, of Charleston, S. C., (*American Journal of Medical Sciences*, January No., 1872,) may be taken as a fair expression of our present knowledge on the subject:

"1. That phthisis occurs in every zone, and that its origin is not rendered impossible by any conditions of climate, of which we have any knowledge.

"2. That the disease, contrary to a very generally received opinion, is not more frequent in cold regions, and that a great degree of cold does not seem to favor its production.

"3. That the same remark may be made in relation to heat.

"4. That of all the influences which are favorable to its development and progress, we must recognize moisture, especially combined with heat.

"5 That great variability in the qualities of heat, cold and moisture are, however, to be recognized as most injurious.

proposition

"6. That the most inimical influence to the origin and development of the disease, is that exercised by the climatic conditions and habits belonging to extreme altitudes.

"7. That consumption is, as a general rule, more frequently met with on sea-shores, and diminishes to a certain extent in proportion to the distances from these localities.

"To nearly all of these statements, however, there are exceptions. In Madrid, according to Walshe, situated 2,000 feet above sea level, phthisis is common. He further says, that if we try to explain the rarity of phthisis in Algiers, and Egypt, and Syria, by the heat and dryness of the air combined, we are met by the difficulty that the East Indies enjoy a somewhat similar exemption, in spite of the marked moisture of the heated atmosphere. In Iceland, where variability holds to a maximum degree, the disease is singularly rare."

The question, however, is not so much what climatic conditions are inimical to the development, as to the progress of pulmonary tuberculosis. If, as Dr. Wilks (London Lancet, Feb., 1874) and others hold, rest is beneficial and exercise injurious in consumption, the adaptability of high altitudes to lungs already involved, because of the greater expansion required by the rarified air, appears questionable, and might be expected to prove measurably detrimental in proportion to the altitude. As regards sea coast, while no positive deductions can be drawn, there is some evidence going to show that *western* sea coasts are much more favorable for consumptives than eastern, as is illustrated by those of Sweeden and Scotland.

As regards the beneficial effects of warm climates in consumption, Dr. C. T. Williams (London Lancet, Aug., 1872) "furnishes, from the practice of Dr. C. J. B. Williams and himself, a statistical account of 251 cases of consumption, who passed periods varying from one to eleven winters in warm climates, out of the United Kingdom.

"* * The average of winters passed abroad by each patient was $2\frac{1}{2}$; and of 18 patients who took voyages, the average number of voyages per patient was $2\frac{1}{2}$.

"The results of the climate on the *general* condition of these patients were that 65 per cent. were more or less improved, 6 per cent. remained stationary, and 29 per cent. became worse. The *local* effects on the lungs were, that in $43\frac{1}{2}$ per cent. cure or decrease of the disease took place, in 14 per cent. it remained stationary, and in 42 per cent. it increased either in the way of advance, or extension, or of both.

"The influence of various groups of climates is next considered, and from the results of a table, it is shown that the *moist* climates, temperate or warm, yielded a percentage of "improved," varying from 50 to 55, of "stationary," varying from $4\frac{1}{2}$ to $14\frac{1}{2}$, and of "worse," from 32 to 45; also that the *dry* climates yielded per centage of "improved," varying from 58 to 65, of "stationary," from 20 to 25, and of "worse," varying from 10 to 21; and that of the patients who took sea voyages, 89 per cent. improved, $5\frac{1}{2}$ per cent. remained stationary, and $5\frac{1}{2}$ per cent. became worse. * * * * *

"With reference to the question whether or no certain forms of consumption derive special benefit from any particular climate, the author deduces from 55 cases of phthisis of inflammatory origin, who wintered in various warm or temperate localities, that a dry climate is more favorable than a moist one for the treatment of this form of the disease; and as regards phthisis of catarrhal origin, the deduction from 41 patients is, that warmth and equability of climate are more important than dryness for patients of this description.

"Forty of the climate cases died, and 202 were living at the last report. Among the former the average duration of life was eight years, and among the latter about nine years, which, when compared with the average of life among patients who did not go abroad, showed a slight extension of duration. The effect of cod liver oil in prolonging life is demonstrated by the instances of 13 patients, who, though they had the full advantages of climate, either omitted oil or took it irregularly. Among these, who are all dead, the average duration was four years, eight months and a half."

Dr. C. J. B. Williams, in concluding a series of papers on pulmonary consumption, (London Lancet, Nov., 1868,) says:

"Of far more importance in the treatment of consumption is change of air and climate. It is of the greatest consequence to the phthisical invalid that he should breathe as pure an air as possible, and that the influence of this pure air on the blood and on the body should be increased by such gentle and varied exercise in it, as his strength and the condition of his organs will permit. This is the great object of our sending him to a warm climate in winter, and to a high and dry locality in the summer, that he may be as much as possible in the *open air*, with its exhilarating and vivifying accessories of light, purity and freshness, without the chilling operation of cold and wet in the winter, and the enervating and exhausting influence of oppressive heat in the summer."

As regards the influence of the climate of the Florida Peninsula on consumption, no reliable statistics have been collected, though the U. S. census for 1870 gives, for the whole State, only one death in 1447. There is much reason for the opinion, however, that the interior and western slope of the Florida peninsula is climatically better adapted to those suffering with pulmonary tuberculosis than any other section of the Union.

"The State is in the same latitude with the Desert of Sahara, Southern China and Northern Mexico; but its comparative degree of heat is not accurately indicated by its latitude, for it is isothermal with the Bermudas, Egypt, Northern Hindostan, Southern California and Louisiana."

Happily, while engaged in writing this paper, Dr. C. W. Horsey's (of Fernandina, Fla.,) article on the "climate of Florida," has appeared in the April number, 1874, of the American Journal of Medical Sciences; and as an expression of the experience and the results of observation of a resident physician on the Atlantic coast, deserves at-

tention, and the more especially as it is corroborative, to some extent, of the facts and opinions which I am endeavoring to set forth. In view also of its relieving myself of any appearance or accusation on the part of the Faculty of the Atlantic or St. John's country, of invidiousness or sectionalism, I am rejoiced at its opportune appearance. Premising that the doctor is mistaken as regards the persistent "humidity and frequent fogs" of this section—for I presume that his personal observations have not extended south of Cedar Keys, Micanopy and Ocala—I shall let him speak for the two sections:

"Fernandina and St. Augustine present the same features of climate met with on the sea-board of semi-tropical countries elsewhere. The atmospheric conditions of both are identical, being invariably moist, especially at night and morning, and under the continued influence of the sea breeze and wind currents from the ocean. During the winter months all points on the coast are exposed to the frequently prevalent northerly storms, which last at times for days, and whose fierce and penetrating blasts are difficult to be borne even by the hardy. On the St. John's, but little difference is observed in the atmosphere at the several places of resort on its banks. The country along the river, for the greater part of its course, is flat, with little elevation above the water level, and, as a rule, extensive swamps and hammocks fringe its borders. The river presents a succession of expansions and contractions, conveying the idea of a continuous chain of lakes, some of which are indeed immense surfaces of water, and it is usually upon such expansions that the resorts are located. The evaporation from the water necessarily causes a very considerable amount of moisture in the air, which is so great that at morning and evening perceptible mists hang over the river, and to a considerable extent on either side, and not unfrequently heavy fogs prevail. It is consequently at the beginning and close of the day constantly damp and chilly, or damp, warm and relaxing, as the temperature may happen to be at the time. This varies probably a very little less on the river, for, lying further inland, it is more protected from the wind, though the difference is slight. The climate on the gulf coast is much milder, though the atmosphere is more or less humid, and fogs are of frequent occurrence. It is apparently less subject to storms, and the wind less penetrating than on the Atlantic. The mean winter temperature of the Atlantic and St. John's may be set down at between 55° and 60°; the thermometer, however, often indicates 75° and 80°, and falls to 35° and 40°, and occasionally as low as 20°. The mean is somewhat higher on the gulf, increasing as we go South.

"In the interior of the State a very different atmosphere and climate are found, which present, also, however, considerable local variation. The surface of the country ascends gradually from both Atlantic and Gulf coasts, and reaches its highest altitude at very nearly the centre of the eastern and peninsula portion of the State, forming a flattened ridge or table land, which traverses it in a direc-

tion northwest and southeast, and extends to the southern extremity of the peninsula. The soil throughout this region, which embraces the largest area of the State, is generally sandy, the country flat and covered with immense pine forrests, interspersed here and there with savannahs or everglades.

"The topography of the middle and western portions is more undulating and hilly, with greater prevalence of clay subsoil, and the vegetation and forest growth suited to such soil. The climate here is more rugged and bleak than in any portion of the State, being the only section in which a marked fall of snow has ever occurred. The highest elevation in the central section is about 300 feet, but varies in different localities, the general average being from 150 to 200 feet. The air here, as a rule, is always dry, and when changes in temperature occur, though at times sudden, provision or accommodation by means of proper clothing, etc., can be made to meet such effects, which is difficult, if not impossible, in humid atmospheres with high barometric pressure."

In a recent article on Middle Florida by Dr. Randolph, of Tallahassee, published in the *Floridian*, a weekly newspaper, Dr. R. says that the climate of that section is essentially *moist* instead of *dry*, as Dr. H. has described it. Of these two contradictory statements I am disposed to accept that of Dr. Randolph, for the reason that he has lived and practiced physic in that section a great many years, and is presumably the better capacitated to judge.

The following remarks of Dr. Horsey, extend to the northern portion of that section to which it is my desire to call attention. He says: "The section of country to which I especially desire to invite and direct attention is the *central pine land* regions, of which the towns of Gainesville, Micanopy, Ocala and Brooksville are the centres. Situated as these points and their surroundings are upon the highest and driest section of the State, sufficiently removed from either coast to be beyond the effects of dampness, they appear to me to possess peculiar fitness to merit all requirements of climate that are to be obtained. We have here the healthful influence of that peculiar aromatic element proverbial to the air of turpentine countries, which I regard as not altogether mythical in its effects, for at least it is inviting for out-door exercise and exertion, and thereby plays a very important role in my idea of the requisites for improvement."

He further says: "I have thoroughly explored the country around Gainesville for a considerable distance, and do not hesitate to recommend this region, which embraces the counties of Alachua, Marion, Sumpter, Wayne, and parts of Hernando, as in my opinion the most eligible section of the State."

To this I give my hearty assent so far as it goes, but it should also include the whole of Hernando, and the counties of Hillsborough, Polk, Manatee, and a portion of the very large county of Monroe. These latter counties are peculiarly exempt from malarial fevers, much more so than any others within my knowledge in the State, and their

natural salubrity may be appreciated, when I state that these counties, with an aggregate population of over 10,000 souls, do not average two practicing physicians a piece. I do not include Key West, which, although in Monroe, forms a distinct community of itself.

The following extract is taken from a report, written in 1853, from near New Smyrna, by Assistant Surgeon Robert Southgate, to the Surgeon-General :

" Lying mostly between two seas, Florida is, by position, entitled to an equable climate ; and yet, on this coast, and in this latitude, equability can hardly be considered characteristic of it. During the winter and spring the atmospheric changes are often sudden and marked. Even in this respect, however, Florida, contrasted with other sections of our country, can claim a superiority. Rarely is the change so great as to impress an individual, in fair health, uncomfortably ; and the invalid has, generally, sufficient warning to guard against it. In relation to general health, indeed, equability can hardly be considered the most vital element of climate ; the highest degree of physical vigor being attained in climates of which variableness is a striking quality. The human organism is constituted for such irritations ; and were it subjected to the monotonous impression of a uniform temperature for a length of time, its powers would, unquestionably, languish. Even in special cases, such as chronic diseases of the lungs, the marked difference, during the summer, between the temperatures of day and night so characteristic of the climate of the coast, would probably be of service to the invalid. The refreshing sleep that may be enjoyed during the cool nights of midsummer, with the invigorating sea-breezes of the day, must in his, as well as other cases, marked by debility and irritation, promote the general health ; while the fact that, during the winter, the temperature is rarely so depressed that exercise in the open air may not be enjoyed, will render it a salutary residence during that season of the year. Exercise in the open air, by maintaining the vigor of digestion, and the appeasing the wearing excitement of the heart and arteries, must economize the vital force and save the integrity of the tissues ; and to the consumptive invalid these considerations are of the very first importance."

What Dr. Southgate says in favor of the climate of Florida in relation to consumption, is peculiarly applicable to that of this section. We have no such vast bodies of sluggish fresh waters, as is found along the St. John's, continually exhaling moisture to be precipitated as fogs and mists, by the air cooling through rapid terrestrial radiation. Nor are we troubled with storms or continuous northern blasts common on the Atlantic. The winds never continue long from any direction, as may be noticed by reference to the meteorological tables in the first part of this article, which, however, are not to be interpreted as meaning that the wind is continuously from the various points of the compass, as there given. While breezes more or less strong are common, the idea that the peninsula is traversed by them alternately from Atlantic to Gulf, and vice versa, from Gulf to Atlan-

tic, may be considered a mere poetical fancy, contrary to the known general laws of air currents.

In this connection it may not be amiss to state also, that the interior *pine land* region spoken of by Dr. Horsey, is not altogether as level as might be inferred from his description; while in places it is so, much of it is undulating, even up to the Gulf beach in some places; and some distance in the interior this undulating character extends so far as Fort Meade, 46 miles southeast of Tampa, which is 80 feet above sea level. I have given the mean altitude of this interior region as about 40 feet above the sea-level, which may be a little less than it actually is. My data are taken from the published statistics of the Surgeon-General's office, referred to in the topographical sketch. Dr. Toner gives the altitude of Gainesville as 160 feet. The statistics give the altitude of Fort King (near Ocala) as 50 feet; Fort Micah (12 miles south of Gainesville) as 60 feet; Fort Brooke (at Tampa) 30 feet. For cantonments, rather elevated spots were selected by the officers. I have already referred to the distinct features of surface drainage in the two sections divided by the 28° of latitude; that north being in many places subterranean, while that south is entirely superficial by means of creeks and ravines, so that in the rainy season the latter section is more or less inundated for short periods at a time.

Cases of pulmonary tuberculosis, occurring in natives or old residents, are extremely infrequent. In a professional experience in this section of 15 years, not more than half a dozen cases have come under my observation, and the whole number occurring south of Ocala, will probably not exceed a dozen or so for the same length of time. Another fact to be borne in mind is, that in no instance where the disease was so styled, was the diagnosis verified by a post mortem examination; so that in view of an advanced knowledge in pulmonic pathology and diagnosis, and the lack of clinical experience in this disease, to say nothing of professional inaptitude and false judgment among the majority of ordinary practitioners of medicine, the correctness of the diagnosis may reasonably be questioned in some cases.

In the majority of the cases the disease occurred in young men with no marked family predisposition; within my knowledge, never in females or negroes. These facts are rather suggestive of the exciting cause having been to some extent, at least, vicious practices, or venereal excess, associated with other deleterious habits. (*Vidi* Action on Reproductive Organs, p. 117.) On the other hand, I know several men who, as soldiers, being then young, in the western and Virginia campaigns, were attacked with bronchorrhagia, and having been discharged in consequence, on their return to their homes, in this section of the State, regained their health, and have continued since in a robust, healthy condition. Some of these parties, as applicants for life insurance, have been examined by me within the last year or so, and in no instance was there any symptom or sign of pulmonary disease. The companies, however, at the Home office, invariably rejected them on account of the early hoemoptysis.

Since the war but few invalids have visited Tampa, the St. John's being their great thoroughfare, so that I have no personal experience to offer in observing the effects of climate on them. What few I have seen were generally expectant, if not sanguine, of great results from climate alone, and discarded cod liver oil and alcohol as remedies. Unfortunately, in a disease where death is the rule and cure the exception, it will take long and persistent observation of a large number of cases, whose clinical histories are to be followed year after year, to determine anything positively as to the benefits to be derived by resorting to any section or climate. American physicians have not hitherto exhibited a zeal in this direction anything like equal to that of the English. The result is that, from insufficient generalization, or generalizing from an insignificant number of cases, many places in various sections of the Union have acquired an ephemeral reputation as a winter resort for consumptives.

In all cases the physician should endeavor to determine the stage of the local disease in the lungs, and the character of its progress, whether slow or rapid, and then conclude from these circumstances, taken in connection with the general condition, whether or not a change of climate is likely to prove beneficial. In selecting a climate the course recommended by Dr. Austin Flint may be adopted. He says :

"The feelings and choice of the patient are to have considerable weight. If, when in health, more vigor and enjoyment are habitually experienced in summer than in winter, a warm climate will probably be best, and, if the reverse be true, a cold climate is to be preferred. The condition of the patient as regards feebleness is an essential point. If he be so feeble as not to be able to live out of doors in cold weather, or if the reaction from the impression of cold be slow and imperfect, a warm climate is more suitable. It is rarely proper to send patients to a cold climate if the disease be considerably advanced, and, as a rule, a cold climate is better suited to male than to female patients." He further says : "Places which are especially the resort of patients are to be avoided ; the moral effect of seeing daily examples of different stages of the disease is unfavorable."

The employment of the mind in connection with out of door exercise is, in the estimation of the author just quoted, of the greatest importance. Here these requirements can be readily met, either in hunting or fishing; or by establishing a more or less permanent home, and engaging in orange growing, etc., both health and profit might be the reward.

It is not my purpose to go into the treatment of consumption, but it may not be inappropriate to say that, discarding the use of the well known remedies, cod-liver oil and alcohol, and relying alone on climatic conditions, however favorable, will, in the majority of cases, end in disappointment. That recovery, or at least great improvement, has been the result of a more or less continued residence in this section, independently of medication, is vouched for by very reliable authority.

In confirmation of this I shall take the liberty of introducing the following communication with cases from Dr. F. Branch, who has resided and practiced medicine in South Florida since 1848:

DEAR SIR: In answer to your inquiry respecting the influence of the climate, on the Gulf coast of South Florida, upon persons afflicted with diseased lungs, I cheerfully furnish the following facts which have transpired under my own observation:

"Case I. W. B., from Green County, Ala., came to Manater, a settlement below Tampa, in the fall of 1851, laboring under a severe cough, having a cavity in the right lung, from which was discharged nearly half a pint of pus daily; so enfeebled as to be unable to walk fifty yards, and was greatly emaciated, having night sweats. He took scarcely any medicine, depending upon gentle exercise in the open air, and milk diet for recuperation. After about nine months residence in Manater, his night sweats had disappeared, the pain had left his lung, his expectoration had nearly subsided, and he was able to walk a mile with but little fatigue. Before the expiration of another year he deemed himself well, and decided to visit his home in Alabama. I advised him to go in June, and return in August. He left in June, and, remaining there, in October his cough returned, with all his former symptoms; and he did not leave for Florida until the 10th of December, and his case terminated fatally on the 10th of March. Had he remained in South Florida, he might have lived for several years.

"Case II. A. G., a practicing attorney, from Memphis, Tenn., came to Manater, Fla., in the fall of 1849. He was extremely emaciated, and had hectic symptoms, such as fever and night sweats. He had copious expectoration, cavity in the right lung, loss of voice, so as to be unable to speak above a whisper, and was unable to take any exercise. He refused medication, not even submitting to counter-irritants; lived principally upon milk diet, eggs, fish and oysters; spent considerable time moving along the coast, sleeping in tents, and often bathing in salt water, after he was sufficiently improved to bear the fatigue. His improvement was gradual, but constant, and in three years he had recovered his voice and his health, insomuch that he delivered an oration with a full volume of voice, on the 4th day of July, 1852. On the first day of June, 1853, he visited his home, near Memphis. While at home, he contracted a severe cold, his cough returned in an aggravated form, and in the following January he returned to Manater only a few days before his death. We deem it a legitimate conclusion that if he had remained upon the Gulf coast of South Florida he might have lived for several years.

"Case III. M. C., of Eufala, Ala., afflicted with diseased lungs, was landed at Tampa, Hillsborough Co., Fla., on the 10th day of June, 1847, being borne in a sheet to his boarding house, in consequence of extreme emaciation and debility, with no prospect of living but a few weeks. His progress in improvement was exceedingly slow; but by the following winter he was enabled to walk a hundred yards before requiring rest. In about two years, he was so far recovered as to be

elected to the office of Clerk of the Circuit Court, which office he retained, performing all its functions, for thirteen years.

"Case IV. Dr. T. came to Tampa, from Vermont, in 1849, hopeless of recovery, from diseased lungs. Resumed practice as physician, and lived twenty-two years. Many similar cases might be mentioned.

Very respectfully yours,

F. BRANCH, M. D."

From the foregoing it will be noticed that a permanent residence in this section is of the greatest importance to the consumptive. And to thousands of such the facilities for making a living by agriculture and fruit growing, and of eventually acquiring independent incomes from the latter, are not to be surpassed in any section of these broad United States.

Before the war many more invalids visited this section than since and now. The great reason for this is entirely dependent on the somewhat less accessibility of this section, compared to the Atlantic and St. John's side. Moreover the facilities of travel and accommodations for pleasure-seekers have hitherto been inadequate, because, as yet, there has been no demand for such. These deficiencies can be readily supplied by putting the Florida R. R., from Fernandina to Cedar Keys, in the condition of a first-class road, with all the comforts of improved cars, etc., and placing more steamers on the line between Cedar Keys and Tampa, touching at the other Gulf ports. Capital would then soon supply hotel accommodations at all desirable points.

In bringing this paper to a close, I will assure the reader that I have been careful to avoid exaggeration, and have only set forth such facts and opinions as are justified by experience, observation and study. To thousands who annually visit the eastern portion of the peninsula, the greater part of this section is a *terra incognita*, because of its remoteness from the main lines of travel. The limited time allowed for its preparation, and the interruptions occasioned by professional engagements, must be my excuse for any absence of methodical detail, and lack of literary polish.

During the writing of this, tests for the presence of ozone in the atmosphere have been repeatedly made, with positive results; its presence being fully indicated at the expiration of three or four hours, day or night. The method of testing was that given in the second American edition of Brande and Taylor's Chemistry, and is thus prepared: "One part of pure iodide of potassium (free from iodate,) is dissolved in two hundred parts of distilled water; ten parts of starch, finely powdered, are mixed with the solution, and the liquid is gently heated until it is thickened from the solution of the starch. White un-sized or sized paper is soaked in the liquid; the paper is dried, cut into slips three inches long by three-quarters of an inch wide, and these are preserved in a stoppered bottle. When intended for use, a slip of the prepared paper is exposed to a full current of air in a spot sheltered as much as possible from rain, light, and foul effluvia, for a period varying from six to twenty-four hours."

